

FORM PTO-1449  
(Rev. 2-32)

U.S. Department of Commerce  
Patent and Trademark Office

Atty. Docket No.

00-713417

Serial No.

09/976,968

INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT

(Use several sheets if necessary)



Applicant:

Chad A. Mirkin, et al.

Filing Date:

October 12, 2001

Group:

1637

U.S. PATENT DOCUMENTS

Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate
u	1.	5,830,986	11/03/98	Merrill, et al.	528	332	10/28/96
	2.	5,900,481	05/04/99	Lough, et al.	536	55.3	11/06/96
	3.	6,203,989	03/20/01	Goldberg, et al.	435	6	03/25/99
	4.	6,251,303	06/26/01	Bawendi, et al.	252	301.4R	09/18/98
	5.	6,277,489	08/21/01	Abbott, et al.	428	403	12/04/98
	6.	6,306,610	10/23/01	Bawendi, et al.	435	7.1	09/17/99
	7.	6,361,944	03/26/02	Mirkin, et al.	435	6	06/25/99
	8.	6,365,418	04/02/02	Wagner, et al.	436	518	05/18/00
u	9.	6,417,340	07/09/02	Mirkin, et al.	536	23.1	10/20/00

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		Document Number	Date	Country	Class	Subclass	Translation Yes No	
u	10.	WO 93/25709	23 December 1993	PCT				
	11.	WO 98/04740	5 February 1998	PCT				
	12.	WO 98/17317	30 April 1998	PCT				
	13.	WO 99/60169	25 November 1999	PCT				
	14.	WO 00/33079	8 June 2002	PCT				
u	15.	WO 01/00876	4 January 2001	PCT				

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4/15/04

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9	16. WO 01/51665	19 July 2001	PCT			
	17. WO 01/73123	4 October 2001	PCT			
	18. WO 01/86301	15 November 2001	PCT			
	19. WO 02/04681	17 January 2002	PCT			
	20. WO 02/18643	7 March 2002	PCT			
	21. WO 02/36169	10 May 2002	PCT			
	22. WO 02/46483	13 June 2002	PCT			
u	23. WO 02/46472	13 June 2002	PCT			

**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**

9	24.	Letsinger, R., et al., "Chemistry of Oligonucleotide-Gold Nanoparticle Conjugates," <i>Phosphorus, Sulfur and Silicon</i> , Volume 144, p. 359-362 (1999)
u	25.	Letsinger, R., et al., "Use of a Steroid Cyclic Disulfide Anchor in Constructing Gold Nanoparticle-Oligonucleotide Conjugates," <i>Bioconjugate Chem</i> , p. 289-291 (2000)

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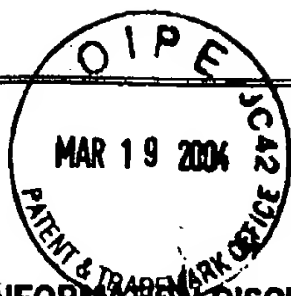
*Becker*

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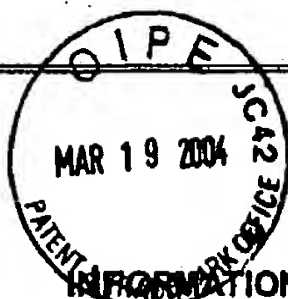
26.	Li Z., et al., "Multiple thiol-anchor capped DNA-gold nanoparticle conjugates," <i>Nucleic Acids Research</i> , Volume 30, p. 1558-1562 (2002)
27.	Nuzzo R., et al., "Spontaneously Organized Molecular Assemblies. 3. Preparation and Properties of Solution Adsorbed Monolayers of Organic Disulfides on Gold Surfaces," <i>J. Am Chem. Soc.</i> , Volume 109, p. 2358-2368 (1987)
28.	Otsuka, H., et al., "Quantitative and Reversible Lectin-Induced Association of Gold Nanoparticles Modified with [α-Lactosyl-β-mercapto-poly(ethyleneglycol)]," <i>J. Am Chem. Soc.</i> , Volume 123, p. 8226-8230 (2001)
29.	Wuelfing, P., et al., "Nanometer Gold Clusters Protected by Surface-Bound Monolayers of Thiolated Poly(ethylene glycol) Polymer Electrolyte," <i>J. Am Chem. Soc.</i> , Volume 120, p. 12696-12697 (1998)

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Atty. Docket No.

00-713,177

Serial No.

09/976,968

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**Applicant:**

Chad A. Mirkin, et al.

**Filing Date:**

October 12, 2001

**Group:**

1656

**U.S. PATENT DOCUMENTS**

Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate
	1.	5,599,668	02/04/97	Stimpson, et al.			
	2.	5,990,479	11/23/99	Weiss, et al.			

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**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**

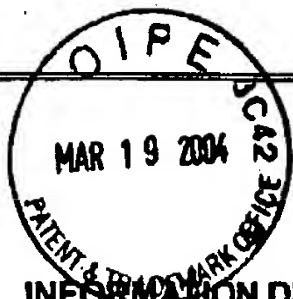
3.	Stimpson, et al., "Real-time detection of DNA hybridization and melting on oligonucleotide arrays by using optical wave guides," <i>Proc. Natl. Acad. Sci.</i> , Vol. 92, pp. 6379-6383, California Institute of Technology (1995) U.S.
4.	Storhoff, et al., "Strategies for Organizing Nanoparticles into Aggregate Structures and Functional Materials," <i>Journal of Cluster Science</i> , Vol. 8, No. 2, pp. 179-217, Plenum Publishing Corporation (1997) U.S.
5.	Storhoff, et al., "One-Pot Colorimetric Differentiation of Polynucleotides with Single Base Imperfections Using Gold Nanoparticle Probes," <i>J. Am. Chem. Soc.</i> , Vol. 120, pp. 1961-1964, American Chemical Society (1998) U.S.
6.	Velev, et al., "In Situ Assembly of Colloidal Particles into Miniaturized Biosensors," <i>Langmuir</i> , Vol. 15, No. 11, pp. 3693-3698, American Chemical Society (1999) U.S.
7.	Zhu, et al., "The First Raman Spectrum of an Organic Monolayer on a High-Temperature Superconductor: Direct Spectroscopic Evidence for a Chemical Interaction between an Amine and YBa <sub>2</sub> Cu <sub>3</sub> O <sub>7-δ</sub> ," <i>J. Am. Chem. Soc.</i> , Vol. 119, pp. 235-236, American Chemical Society (1997) U.S.

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00-713-117

Serial No.

09/976,968

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Chad A. Mirkin, et al.

Filing Date:

October 12, 2001

Group:

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U.S. PATENT DOCUMENTS

Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate

FOREIGN PATENT DOCUMENTS

Document Number	Date	Country	Class	Subclass	Translation Yes No

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

8.	Yguerabide, et al., "Light-Scattering Submicroscopic Particles as Highly Fluorescent Analogs and Their Use as Tracer Labels in Clinical and Biological Applications," I. Theory, <i>Analytical Biochemistry</i> , Vol. 262, pp. 137-156 (1998) U.S.
9.	Yguerabide, et al., "Light-Scattering Submicroscopic Particles as Highly Fluorescent Analogs and Their Use as Tracer Labels in Clinical and Biological Applications," II. Experimental Characterization, <i>Analytical Biochemistry</i> , Vol. 262, pp. 157-176 (1998) U.S.

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Patent and Trademark Office

Atty. Docket No.

00-713-177

Serial No.

09/979,968

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**Applicant:**

Chad A. Mirkin, et al.

**Filing Date:**

October 12, 2001

**Group:**

1656

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	1.	5,599,668	02/04/97	Stimpson, et al.			
	2.	5,990,479	11/23/99	Weiss, et al.			

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	3.	Stimpson, et al., "Real-time detection of DNA hybridization and melting on oligonucleotide arrays by using optical wave guides," <i>Proc. Natl. Acad. Sci.</i> , Vol. 92, pp. 6379-6383, California Institute of Technology (1995) U.S.
	4.	Storhoff, et al., "Strategies for Organizing Nanoparticles into Aggregate Structures and Functional Materials," <i>Journal of Cluster Science</i> , Vol. 8, No. 2, pp. 179-217, Plenum Publishing Corporation (1997) U.S.
	5.	Storhoff, et al., "One-Pot Colorimetric Differentiation of Polynucleotides with Single Base Imperfections Using Gold Nanoparticle Probes," <i>J. Am. Chem. Soc.</i> , Vol. 120, pp. 1961-1964, American Chemical Society (1998) U.S.
	6.	Velev, et al., "In Situ Assembly of Colloidal Particles into Miniaturized Biosensors," <i>Langmuir</i> , Vol. 15, No. 11, pp. 3693-3698, American Chemical Society (1999) U.S.
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	<b>INFORMATION DISCLOSURE</b> <b>STATEMENT BY APPLICANT</b>			
	(Use several sheets if necessary)			
			<b>Applicant:</b> Chad A. Mirkin, et al.	
			<b>Filing Date:</b> October 12, 2001	<b>Group:</b> 1656

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### FOREIGN PATENT DOCUMENTS

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### OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc).

8.	Yguerabide, et al., "Light-Scattering Submicroscopic Particles as Highly Fluorescent Analogs and Their Use as Tracer Labels in Clinical and Biological Applications," I. Theory, <i>Analytical Biochemistry</i> , Vol. 262, pp. 137-156 (1998) U.S.
9.	Yguerabide, et al., "Light-Scattering Submicroscopic Particles as Highly Fluorescent Analogs and Their Use as Tracer Labels in Clinical and Biological Applications," II. Experimental Characterization, <i>Analytical Biochemistry</i> , Vol. 262, pp. 157-176 (1998) U.S.

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09/975,968

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1637

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	2.	5,900,481	05/04/99	Lough, et al.	536	55.3	11/06/96
	3.	6,203,989	03/20/01	Goldberg, et al.	435	6	03/25/99
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	5.	6,277,489	08/21/01	Abbott, et al.	428	403	12/04/98
	6.	6,306,610	10/23/01	Bawendi, et al.	435	7.1	09/17/99
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	9.	6,417,340	07/09/02	Mirkin, et al.	536	23.1	10/20/00

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	10.	WO 93/25709	23 December 1993	PCT				
	11.	WO 98/04740	5 February 1998	PCT				
	12.	WO 98/17317	30 April 1998	PCT				
	13.	WO 99/60169	25 November 1999	PCT				
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24.	Letsinger, R., et al., "Chemistry of Oligonucleotide-Gold Nanoparticle Conjugates," <i>Phosphorus, Sulfur and Silicon</i> , Volume 144, p. 359-362 (1999)
25.	Letsinger, R., et al., "Use of a Steroid Cyclic Disulfide Anchor in Constructing Gold Nanoparticle—Oligonucleotide Conjugates," <i>Bioconjugate Chem.</i> , p. 289-291 (2000)

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	2.	5,508,164	04/16/96	Kausch, et al.	435	6	10/29/93
	3.	5,922,537	07/13/99	Ewart, et al.	435	6	11/8/96
	4.	5,972,615	10/26/99	An, et al.	435	6	01/21/98
	5.	6,264,825	07/24/01	Blackburn, et al.	205	777.5	06/23/99
	6.	6,214,560	04/10/01	Yguerabide, et al.	435	7.1	04/18/97

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	7.	WO 94/29484	12/22/94	PCT				
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**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**

	9.	Mohanty J., et al. "Pulsed laser excitation of phosphate stabilized silver nanoparticles," <i>Proc. Indian Acad. Sci.</i> , Vol. 112, No. 1, p. 63-72.
	10.	Nicewamer- Peña S., et al., "Hybridization and Enzymatic Extension of Au Nanoparticle-Bound Oligonucleotides," <i>J. Am. Chem. Soc.</i> , Vol. 124, p. 7314-7323 (2002)
	11.	Whitesides G.M., et al., "Soft Lithography in Biology and Biochemistry," <i>Annu. Rev. Biomed. Eng.</i> , p. 335-373 (2001)

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